WEATHER, FORECASTS, AND WARNINGS.

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NORTHERN HEMISPHERE PRESSURE.

Alaska.—During the first and third decades pressure averaged below normal, while during the second decade it averaged above. Lows occurred about the 3d–4th, 5th–6th, 7th–8th, 11th, 24th, 27th, and last of the month; and highs on the 9th, 14th–15th, 17th, 20th, and 28th.

Honolulu.—Pressure averaged above normal for the month. Lows occurred on the 3d–4th, 7th, 11th, 17th, 20th, 24th, and 29th–30th; and highs on the 6th, 9th, 13th–16th, 18th–19th, 22d, 27th–28th, and 31st.

Iceland.—Pressure averaged about normal during the month. Lows occurred on the 1st, 5th, 8th, 9th–10th, 14th–15th, 18th–19th, and 28th; and highs on the 3d, 6th, 11th–12th, 17th, 25th, and 30th.

Azores.—Pressure was relatively low during the first decade and above normal during the second and third decades. Lows occurred on the 2d–3d, 6th–7th, 9th, 14th, 19th, 24th, and last of the month; and highs on the 5th, 8th, 13th, 16th, 22d, 25th–26th, and 29th. The highest temperatures of record for the month of May were reported at Paris, France, during the first decade of the month.

Siberia.—During the first half of the month pressure averaged above normal, while during the latter half it was below the seasonal average. Well-marked lows occurred on the 6th, 12th, 19th–20th, and 26th; and highs on the 2d–3d, 7th, 15th, 23d–24th, and 29th. Light rains occurred in the Philippine Islands about the 8th of the month breaking a seven-month drought—one without precedent in the records of the islands.

At the beginning of the month a high-pressure area was over the Middle Atlantic States causing frosts in the North Atlantic States; temperatures being generally below the seasonal average from the Mississippi Valley eastward. West of the Mississippi River temperatures were above the normal and pressure was relatively low, there being a low center over Utah. The high pressure area over the Middle Atlantic States moved off the coast and the low-pressure area over Utah moved to southeastern Colorado by the morning of the 2d. Frost warnings were issued on the morning of the 3d for Utah, western and northern Colorado, and northern New Mexico, all of which were verified. Warnings of frost were again issued the next day and again verified. On the morning of the 5th frost warnings were disseminated for Wyoming, Idaho, and Utah and frosts occurred as indicated in the warnings. The low-pressure area moved slowly eastward to the Plains States by the morning of the 4th, attended by changes to cooler weather, a high-pressure area in the meantime having developed over Ontario. During the next two days the low-pressure area moved slowly northward to northern North Dakota and an offshoot from it of illy-defined character passed to the lower lake region by the morning of the 6th. The high-pressure area moved eastward and passed off the New England coast.

The following weekly forecast was issued Sunday, May 5:

> The general pressure distribution over the North American Continent and the adjacent oceans is such as to indicate that the coming week will give temperatures slightly below the seasonal average and a normal amount of rainfall throughout the country.
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> A disturbance that now covers the western districts will move slowly eastward and reach the Atlantic States about Thursday; it will be attended by local rains and thunderstorms the first part of the week in the great central valleys and the Eastern and Southern States. Considerably cooler weather will appear in the Northwestern States Wednesday or Thursday.

The North Dakota storm passed northward with decreasing intensity by the morning of the 7th, while the disturbance over the lower lake region had caused unsettled weather with showers and thunderstorms and cooler weather over the Ohio Valley and Appalachian region. By the morning of the 9th there were two low centers, one over the Maine coast and the other over eastern Ontario. The weather had cleared in the Ohio Valley and Middle Atlantic States. By the morning of the 10th there was one center over New Brunswick which during the next 24 hours had passed northeastward from the field of observation. These disturbances caused precipitation generally over the country from the Rocky Mountains to the Atlantic coast.

A high-pressure area that appeared on the Washington coast on the morning of the 6th moved to Wyoming by the morning of the 7th. Frost warnings were issued for Idaho, eastern Oregon, eastern Washington, Montana, and Wyoming, and frosts occurred as indicated in the warnings. On the morning of the 9th the center of high pressure was over Indiana and by the following morning had advanced to West Virginia and during the next 24 hours passed off the coast.

The next storm to cross the country appeared over New Mexico on the evening of the 8th nd by the following morning had advanced to southwestern Texas, an area of low pressure having in the meantime appeared over Saskatchewan. By the morning of the 10th the northern storm had moved to Minnesota and the southern storm to southwestern Kansas. On the morning of the 11th there was but one center and that was over the State of Missouri. Storm warnings were ordered during the morning of that date for the Great Lakes, except Ontario, and high winds occurred as indicated. Warnings of thunder squalls were also sent to south Atlantic coast stations and high winds occurred during the day. On the evening of the 11th storm warnings were ordered for the Atlantic coast from Savannah to Boston, and the high winds that occurred justified the warnings. During the next 24 hours the storm moved to northwestern Ohio; by the morning of the 13th it was over the Province of Quebec and by the following morning had passed to the extreme eastern portion of that Province. This storm

was attended by showers and thunderstorms and cooler weather from the Rocky Mountains eastward, tornadoes being reported in portions of Kansas and Alabama.

The following weekly forecast was issued Sunday, May 12:

The indications are that during the coming week fair weather will predominate, with temperatures below the seasonal average generally east of the Rocky Mountains and near or above normal on the Pacific slope. Showers are probable, however, Monday in the Middle Atlantic and New England States attending the eastward movement of a disturbance that is now over the Ohio Valley. A change to considerably cooler weather will overspread the region east of the Mississippi Valley Monday and Tuesday, and frosts are likely to occur the first part of the week in the Rocky Mountain region, the northern Plains States, the upper Mississippi Valley, and the upper Lake region; and Tuesday and Wednesday in the lower Lake region, the upper Ohio Valley, and the interior of the North Atlantic States.

The next disturbance to cross the country will appear in the far West Wednesday or Thursday and move to the Middle West near the close of the week; it will be preceded by a general rise in temperature and be attended by local showers and thunderstorms.

Following the passage of the storm previously mentioned pressure increased over the north Pacific coast, and by the morning of the 11th a separate center of high pressure was over Montana. Frost warnings were ordered for Montana, Wyoming, the Dakotas, Minnesota, Nebraska, Washington, Oregon, and Idaho, and frosts occurred in the States referred to. The area of high pressure on the morning of the 13th was central over western South Dakota and warnings for frost were disseminated for the Plains States, the upper Mississippi Valley, and the northern slope of the Rocky Mountains and occurred over portions of the States mentioned. The high was over the central Rocky Mountain region on the 14th and pressure remained relatively high in that region for several days following.

The next disturbance of importance appeared over eastern North Dakota on the morning of the 14th and by the following morning had advanced to Wisconsin, another center having passed from the south Texas coast to southern Georgia. On the morning of the 16th there were two centers, one over southeastern Virginia and the other over Ohio. On the afternoon of the 16th storm warnings were ordered for the New England coast and high winds occurred over the territory indicated in the warnings. By the morning of the 17th there was but one center, over extreme northern New York, which during the next 24 hours passed to New Brunswick. Showers and thunderstorms occurred quite generally from the Rocky Mountains eastward.

A high-pressure area appeared over North Dakota on the evening of the 15th and by the following morning had passed to South Dakota, frosts being reported in South Dakota, Nebraska, and Kansas. By the morning of the 17th the high-pressure area was over Missouri, and during the next 24 hours it increased in intensity and moved to Tennessee. Pressure remained high over the South Atlantic States through the 21st.

On the morning of the 18th another high appeared over Manitoba and by the following morning had advanced to Michigan. It was over Maine on the 20th and passed thence eastward over the Ocean during the 24 hours following. Attending the passage of this high-pressure area changes to cooler weather occurred over northern districts.

Conditions were unsettled on the morning of the 18th over the Plateau region and by the following morning this condition had advanced slowly eastward, there being a low of slight intensity over western Nebraska.

The following weekly forecast was issued Sunday, May 19th:

Temperatures during the coming week will average near or above the normal in the Southern States and generally throughout the western districts; cool weather will prevail the first half of the week in the Northern States east of the Rocky Mountains, but it will give way to warmer weather in this region about Wednesday. The weather over the country during the week will be generally fair, except that it will be unsettled, with probably local showers and thunderstorms the first half of the week in the Northern States, as a result of the eastward movement of a disturbance that is now forming in the far West. No general storm area will cross the country during the week.

By the morning of the 20th the low before mentioned had passed to Kansas, with a looping of isobars and an area of showers reaching from it to the Michigan Peninsula. The weather remained unsettled with showers throughout the Lake region during the two days following and temperatures rose to above normal in the Mississippi and Ohio Valleys. Another low that developed over the middle Plateau had advanced to eastern Nebraska on the morning of the 22d. During the next 24 hours it passed to Wisconsin and by the morning of the 24th to Quebec. Precipitation in connection with this storm was confined to northern districts from the Pacific to the Atlantic coasts.

A high-pressure area had developed over the northern slope and northern Plateau States by the morning of the 24th, and frosts were reported over southern Idaho and Wyoming, warnings for which had been previously issued. The high by the morning of the 25th had advanced to the Mississippi Valley. Thence it moved slowly eastward during the next 24 hours to the Ohio Valley and by the morning of the 27th to the Middle Atlantic coast.

The following weekly forecast was issued Sunday, May 26th:

The temperature during the coming week will average above the normal over the greater part of the country east of the Rocky Mountains and generally below normal on the Pacific Slope. Considerably cooler weather will, however, appear in the Northwest about Thursday and overspread the middle West by the end of the week. The barometric pressure will remain low with showers in the northwestern districts during the next several days, and a well-defined storm area will overspread the middle West Wednesday or Thursday and move eastward to the Atlantic States Friday or Saturday. Except for the showers and thunderstorms attending this disturbance, the week will be one of generally fair weather.

The next storm to cross the country appeared over Saskatchewan on the morning of the 26th and by the morning following had passed to North Dakota with decidedly increased intensity. During the next 24 hours it advanced to Minnesota and by the 29th was over northern Maine with a trough extending into the Ohio Valley. The center proper apparently disintegrated, and a low that developed in the trough during the 29th was central on the evening of that date over western Maryland. It thence moved slowly northeastward to a position off the coast of Maine by the evening of the last day of the month. This storm was preceded by warmer weather, attended by showers and thunderstorms and followed by changes to cooler weather. Precipitation occurred quite generally over the country east of the Rocky Mountains.

On the Middle Pacific coast by the morning of the 28th pressure became relatively high and remained so over that region until the end of the month.

A high of slight intensity that appeared over Manitoba on the evening of the 28th advanced during the next 36 hours to Lake Superior. On the last day of the month it was over West Virginia.

A low-pressure area that was central over the middle Plateau on the evening of the 29th moved to Colorado by the following morning and another center appeared over western North Dakota. At the end of the month the Colorado disturbance was over the southern plains

States, while the northern one had moved to western Lake Superior.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since Jan. 1.	Average departures since Jan. 1.
New England	12	55.2	+0.7	− 9.5	−1.9
Middle Atlantic	15	62.8	+1.3	− 9.2	−1.8
South Atlantic	10	71.5	+1.6	− 4.6	−0.9
Florida Peninsula[1]	9	78.2	+2.0	+ 1.8	+0.4
East Gulf	11	73.1	+0.8	− 8.6	−1.7
West Gulf	11	73.5	+0.6	−13.0	−2.6
Ohio Valley and Tennessee	14	66.1	+1.0	−15.8	−3.2
Lower Lakes	11	58.4	+1.0	−19.9	−4.0
Upper Lakes	13	53.3	+0.6	−22.7	−4.5
North Dakota[1]	9	53.9	+0.3	− 6.7	−1.3
Upper Mississippi Valley	14	64.0	+2.1	−20.9	−4.2
Missouri Valley	12	64.3	+2.3	−12.3	−2.5
Northern slope	10	52.1	−0.6	− 7.3	−1.5
Middle slope	6	64.4	+1.5	−14.7	−2.9
Southern slope[1]	8	71.6	+2.2	−10.5	−2.1
Southern Plateau[1]	9	66.5	−1.8	− 6.2	−1.2
Middle Plateau[1]	10	53.2	−1.9	− 1.6	−0.3
Northern Plateau[1]	11	53.5	−0.6	− 0.2	0.0
North Pacific	7	55.2	+2.0	+ 7.6	+1.5
Middle Pacific	7	57.9	+0.3	+ 0.2	0.0
South Pacific	4	62.3	+0.7	+ 3.3	+0.7

[1] Regular Weather Bureau and selected cooperative stations.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
New England	11	4.77	142	+1.40	+ 2.10
Middle Atlantic	15	3.78	109	+0.30	+ 0.80
South Atlantic	11	4.35	113	+0.50	+ 1.70
Florida Peninsula[1]	9	5.66	139	+1.60	+ 6.60
East Gulf	11	4.88	136	+1.30	+11.40
West Gulf	10	3.37	81	−0.80	− 0.10
Ohio Valley and Tennessee	14	3.88	105	+0.20	+ 2.30
Lower Lakes	10	3.82	122	+0.70	+ 1.30
Upper Lakes	13	5.00	147	+1.60	− 0.70
North Dakota[1]	9	4.15	163	+1.60	+ 0.90
Upper Mississippi Valley	15	4.27	102	+0.10	− 0.60
Missouri Valley	12	2.83	67	−1.40	− 0.70
Northern slope	9	2.43	104	+0.10	+ 0.30
Middle slope	6	3.02	79	−0.80	− 0.40
Southern slope[1]	8	1.89	49	−2.00	− 2.00
Southern Plateau[1]	9	0.42	100	0.00	− 0.20
Middle Plateau[1]	11	0.49	45	−0.60	− 0.60
Northern Plateau[1]	11	2.26	128	+0.50	+ 0.50
North Pacific	7	1.96	77	−0.60	− 4.10
Middle Pacific	7	1.42	116	+0.20	− 4.00
South Pacific	4	0.70	117	+0.10	− 0.30

[1] Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departure from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	77	− 1	Upper Mississippi Valley	69	+ 1
Middle Atlantic	72	0	Missouri Valley	61	− 4
South Atlantic	75	+ 1	Northern slope	60	+ 1
Florida Peninsula	80	+ 4	Middle slope	57	− 4
East Gulf	72	+ 1	Southern slope	48	−13
West Gulf	71	− 4	Southern Plateau	35	+ 3
Ohio Valley and Tennessee	69	+ 1	Middle Plateau	44	− 2
Lower Lakes	71	0	Northern Plateau	59	+ 3
Upper Lakes	76	+ 4	North Pacific	75	− 1
North Dakota	70	+ 8	Middle Pacific	70	− 1
			South Pacific	70	+ 1

Average cloudiness and departure from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	6.3	+0.8	Upper Mississippi Valley	5.3	0.0
Middle Atlantic	4.8	−0.4	Missouri Valley	4.5	−0.6
South Atlantic	4.8	+0.3	Northern slope	5.4	−0.1
Florida Peninsula	5.9	+1.5	Middle slope	4.4	−0.5
East Gulf	4.2	−0.5	Southern slope	3.5	−0.9
West Gulf	3.9	−0.9	Southern Plateau	2.4	−0.3
Ohio Valley and Tennessee	4.9	−0.1	Middle Plateau	5.0	+0.9
Lower Lakes	5.3	−0.1	Northern Plateau	5.5	+0.4
Upper Lakes	6.1	+0.6	North Pacific	5.5	−0.8
North Dakota	5.8	+0.3	Middle Pacific	4.4	+0.4
			South Pacific	4.6	+0.5

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Buffalo, N. Y.	13	50	sw.	New York, N. Y.	17	53	w.
El Paso, Tex.	9	54	nw.	Do.	24	57	nw.
Do.	14	52	ne.	North Head, Wash.	26	52	s.
Dodge, Kans.	2	50	se.	Do.	27	57	s.
Fort Smith, Ark.	10	54	s.	Oklahoma, Okla.	9	54	nw.
Hatteras, N. C.	25	54	nw.	Pensacola, Fla.	11	76	se.
Kansas City, Mo.	6	50	nw.	Pierre, S. Dak.	27	59	w.
Modena, Utah.	1	52	sw.	Pittsburgh, Pa.	11	52	se.
Do.	19	50	sw.	Point Reyes Light, Cal.	1	63	nw.
Do.	20	52	sw.	Do.	2	58	nw.
Do.	25	54	sw.	Do.	3	62	nw.
Mount Tamalpais, Cal.	1	58	nw.	Do.	4	54	nw.
Do.	14	53	nw.	Do.	5	68	nw.
Do.	15	60	nw.	Do.	15	54	nw.
Do.	29	66	nw.	Do.	29	72	nw.
Mount Weather, Va.	13	62	nw.	Do.	30	51	nw.
New York, N. Y.	9	52	w.	Southeast Farallon, Cal.	2	50	nw.
Do.	12	52	s.	Wichita, Kans.	4	53	s.
Do.	13	57	nw.				